

Report No. 902271

RESEARCH TEST & MEASUREMENT LAB WORK REQUEST

☐ Developmental ☒ Design Acceptance ☐ Pre-Pilot ☐ Pilot ☐ Production Acceptance	AREA OF TESTING ☐ Safety Related ☐ Competitive Evaluation ☐ New Design ☒ Design Change ☐ Plant Assistance ☐ Litigation ☐ Warehouse Audit ☐ Cost Reduction State _____ ☒ Other <u>New CALIBER</u>	
FIREARM STATS. MODEL: <u>M 700</u> CAL. or GAGE: <u>7x64</u> BARREL TYPE: <u>CUT</u> PROOFED: YES ☐ NO ☒	REPORT REQ'D. FORMAL _____ TEST RESULTS ONLY ☒	DATE REQUESTED: <u>8-15-90</u> DATE NEEDED BY: <u>ASAP</u> REQUESTED BY: <u>F. MARTIN</u> WORK ORDER NO: <u>1118-481153</u>

TEST TYPE			
☐ Strength Test	☐ Ammunition Test	☐ Dry Cycle Test	☐ Photo/Video
☒ Function Test	☐ Environmental Test	☐ Measurements	☐ Other _____
☒ Accuracy Test	☐ Customer Complaint	☐ Endurance Test	_____

EXPLAIN IN DETAIL THE REASON FOR THIS TEST:

6 Guns Supplied For
Field Function And 100 yd. Accuracy
3x5 Per Gun

GUNS REQUIRED:

NOTE: NO firearms or parts will be tested in the Labs unless they are accompanied by a Work Request, and both are delivered to the Labs by the designer or engineer. All Work Requests are to be filled out in detail. No Exceptions.

DATE COMPLETED: _____
TEST COMPLETED BY: _____
REPORT DATE: _____

MIN - 1.46

MAX - 2.34

AVG - (6 RIFLES) - 1.83

SN# 646 3032

26 Sep 1998

FILE:/PATTERNING/CENTERFIRE_PATT/C6563032-

CENTERFIRE PATTERNS

1

POA

1in circle

2in circle

3in circle

OF SHOTS- 5

IN CIR

1in - 4

2in - 5

3in = 5

HS- .920

VS- .600

GS- .936

AUG = 1.46

CENTROID *

PATTERN #

1

SHOTS (BEST OF)

5

4

3

m-700

7X64

MAXIMUM X

.536

.128

.045

Ammo- NORMA

MINIMUM X

-.384

-.250

-.068

150 GR. SP. STRE PT.

MAXIMUM Y

.376

.366

.291

INDEX- 17613

MINIMUM Y

-.224

-.234

-.309

LOT- 02723

CENTROID X

-.037

-.171

-.088

SCOPE- LYMAN

CENTROID Y

-.047

-.037

.038

ALL AMERICAN- 20-X

POA TO CENTROID in.

.060

.175

.095

LEUPOLD BASE & RINGS

MIN RADIUS

.157

.093

.070

MEAN RADIUS

.347

.269

.225

RANGE- 100 YDS.

MAX RADIUS

.538

.381

.312

HORIZONTAL SPREAD

.920

.378

.113

REST- SAND BAG.

VERTICAL SPREAD

.600

.600

.600

EXTREME SPREAD

.936

.690

.600

NUMBER IN ONE INCH CIRCLE =

4

5

NUMBER IN TWO INCH CIRCLE =

5

5

NUMBER IN THREE INCH CIRCLE =

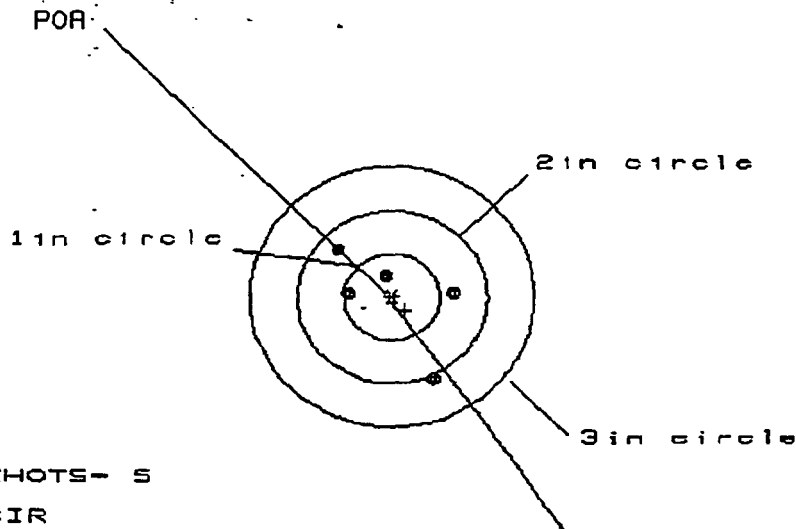
5

5

26 Sep 1998

FILE: PATTERNING/CENTERFIRE_PATT/C6563032

CENTERFIRE PATTERNS # 3



OF SHOTS- 5

IN CIR

1in - 2

2in - 4

3in - 5

HS= 1.249

VS= 1.531

GS= 1.829

CENTROID *

PATTERN #	1	3	4	3
SHOTS (BEST OF)	5		4	3
MAXIMUM X	.656		.758	.594
MINIMUM X	-.593		-.491	-.476
MAXIMUM Y	.544		.297	.139
MINIMUM Y	-.987		-.176	-.077
CENTROID X	-.136		-.237	-.074
CENTROID Y	.148		.395	.296
POA TO CENTROID in.	.201		.461	.305
MIN RADIUS	.292		.061	.182
MEAN RADIUS	.650		.441	.420
MAX RADIUS	1.068		.778	.599
HORIZONTAL SPREAD	1.249		1.249	1.070
VERTICAL SPREAD	1.531		.473	.216
EXTREME SPREAD	1.829		1.336	1.070
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	

26-Sep 1998

FILE:/PATTERNING/CENTERFIRE-PATT/C6563032

CENTERFIRE PATTERNS # 2

POR

1in circle

2in circle

3in circle

CENTROID *

OF SHOTS- 5

IN CIR

1in = 3

2in = 5

3in = 5

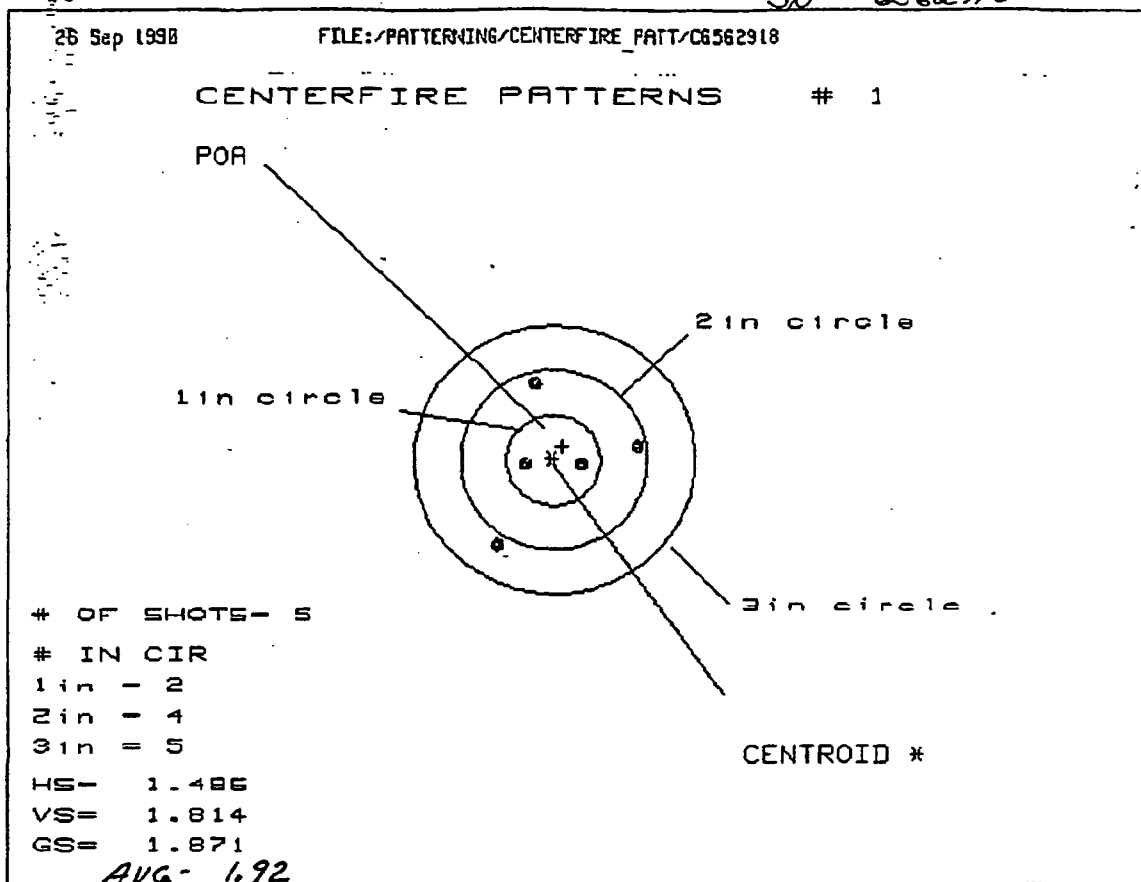
HS= 1.556

VS= 1.026

GS= 1.608

PATTERN #	2	3	4	5
SHOTS (BEST OF)	5	4	3	
MAXIMUM X	.739	.535	.074	
MINIMUM X	-.817	-.233	-.055	
MAXIMUM Y	.545	.277	.220	
MINIMUM Y	-.481	-.344	-.252	
CENTROID X	.151	.355	.177	
CENTROID Y	-.215	-.352	-.444	
POR TO CENTROID in.	.263	.500	.478	
MIN RADIUS	.101	.165	.063	
MEAN RADIUS	.503	.351	.183	
MAX RADIUS	.982	.602	.253	
HORIZONTAL SPREAD	1.556	.768	.129	
VERTICAL SPREAD	1.026	.621	.472	
EXTREME SPREAD	1.608	.961	.481	
NUMBER IN ONE INCH CIRCLE	=	3		
NUMBER IN TWO INCH CIRCLE	=	5		
NUMBER IN THREE INCH CIRCLE	=	5		

SU # 6562918



PATTERN #	:	1			
SHOTS (BEST OF)	:	5	4	3	
MAXIMUM X	:	.866	.711	.605	AMMO: NORMA
MINIMUM X	:	-.620	-.492	-.598	150 GR. SP. SPIRE PT.
MAXIMUM Y	:	.877	.643	.128	INDEX 17013
MINIMUM Y	:	-.937	-.318	-.104	LOT - 02723
CENTROID X	:	-.098	.057	.163	SCOPE: LYMAN
CENTROID Y	:	-.155	.079	-.135	ALL AMERICAN - 20X
POA TO CENTROID in.	:	.183	.098	.212	LEUPOLD BASE & RINGS
MIN RADIUS	:	.267	.333	.104	RANGE - 100 YDS.
MEAN RADIUS	:	.700	.578	.440	REST: SAND BAG
MAX RADIUS	:	1.123	.717	.618	
HORIZONTAL SPREAD	:	1.486	1.203	1.203	
VERTICAL SPREAD	:	1.814	.961	.232	
EXTREME SPREAD	:	1.871	1.260	1.213	
NUMBER IN ONE INCH CIRCLE	=		2		
NUMBER IN TWO INCH CIRCLE	=		4		
NUMBER IN THREE INCH CIRCLE	=		5		

26 Sep 1998

FILE:/PATTERNING/CENTERFIRE_PATT/C6562918

CENTERFIRE PATTERNS # 2

POA

1in circle

2in circle

3in circle

OF SHOTS- 5

IN CIR

1in = 3

2in = 4

3in = 5

HS= 1.781

VS= .739

GS= 1.903

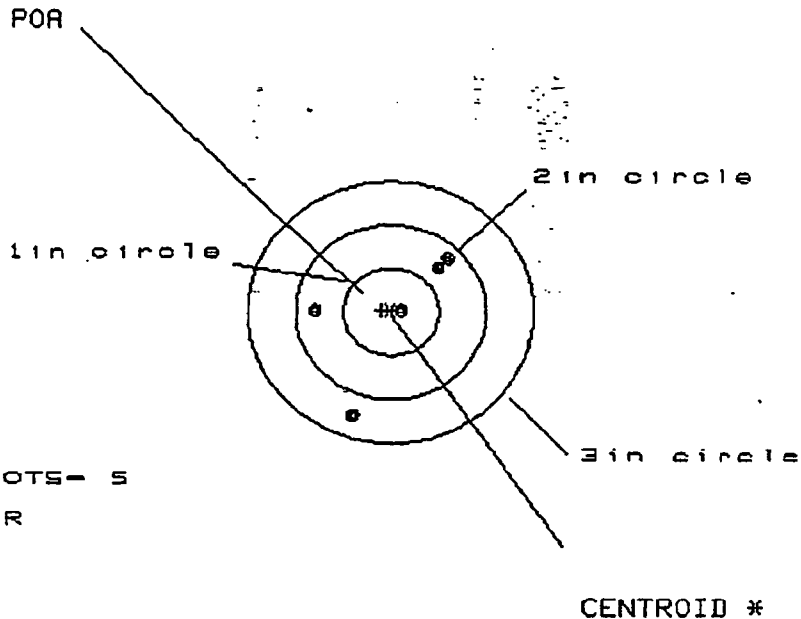
CENTROID #

PATTERN #	2	4	3
SHOTS (BEST OF)	5	4	3
MAXIMUM X	.879	.654	.440
MINIMUM X	-.902	-.685	-.467
MAXIMUM Y	.509	.220	.209
MINIMUM Y	-.230	-.103	-.114
CENTROID X	-.072	.153	-.065
CENTROID Y	-.084	-.211	-.200
POA TO CENTROID in.	.111	.261	.210
MIN RADIUS	.233	.217	.117
MEAN RADIUS	.625	.457	.360
MAX RADIUS	1.035	.720	.511
HORIZONTAL SPREAD	1.781	1.339	.907
VERTICAL SPREAD	.739	.323	.323
EXTREME SPREAD	1.903	1.363	.956
NUMBER IN ONE INCH CIRCLE	= 3		
NUMBER IN TWO INCH CIRCLE	= 4		
NUMBER IN THREE INCH CIRCLE	= 5		

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FILE:/PATTERNING/CENTERFIRE_PATT/C8562918

CENTERFIRE PATTERNS # 3



OF SHOTS = 5

IN CIR

1 in = 1

2 in = 4

3 in = 5

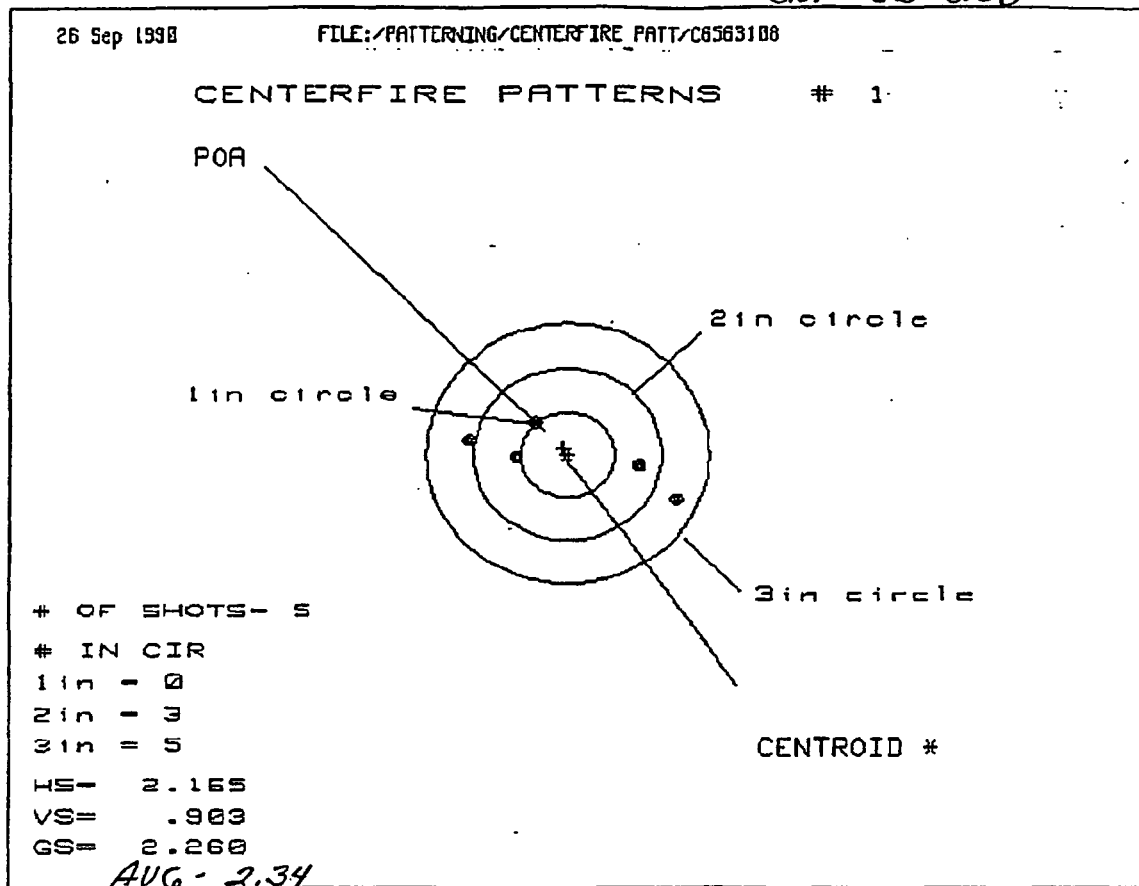
HS = 1.371

VS = 1.729

GS = 1.982

PATTERN #	3	4	3
SHOTS (BEST OF)	5	4	3
MAXIMUM X	.605	.514	.547
MINIMUM X	-.766	-.857	-.686
MAXIMUM Y	.594	.310	.369
MINIMUM Y	-1.135	-.295	-.192
CENTROID X	.101	.192	.021
CENTROID Y	-.010	.266	.163
POA TO CENTROID in.	.103	.328	.164
MIN RADIUS	.059	.297	.237
MEAN RADIUS	.717	.565	.535
MAX RADIUS	1.192	.902	.708
HORIZONTAL SPREAD	1.371	1.371	1.233
VERTICAL SPREAD	1.729	.605	.561
EXTREME SPREAD	1.982	1.493	1.348
NUMBER IN ONE INCH CIRCLE =	1		
NUMBER IN TWO INCH CIRCLE =	4		
NUMBER IN THREE INCH CIRCLE =	5		

SN. # 6563108



PATTERN #	:	1		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.158	1.085	.845
MINIMUM X	:	-1.007	-.718	-.513
MAXIMUM Y	:	.414	.292	.305
MINIMUM Y	:	-.489	-.196	-.183
CENTROID X	:	.045	-.244	-.005
CENTROID Y	:	-.082	.040	.027
POA TO CENTROID in.	:	.094	.248	.028
MIN RADIUS	:	.563	.305	.451
MEAN RADIUS	:	.840	.608	.614
MAX RADIUS	:	1.257	1.102	.865
HORIZONTAL SPREAD	:	2.165	1.802	1.358
VERTICAL SPREAD	:	.903	.488	.488
EXTREME SPREAD	:	2.260	1.817	1.359
NUMBER IN ONE INCH CIRCLE	=		0	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	

m 700 - 7X64.

Ammo: NORMA

156 GR. SP. SPIRE PT.

INDEX: 17613

LOT: 02723

SCOPE - LYMAN

ALL AMERICAN - 20X

LEUPOLD BASE & RINGS.

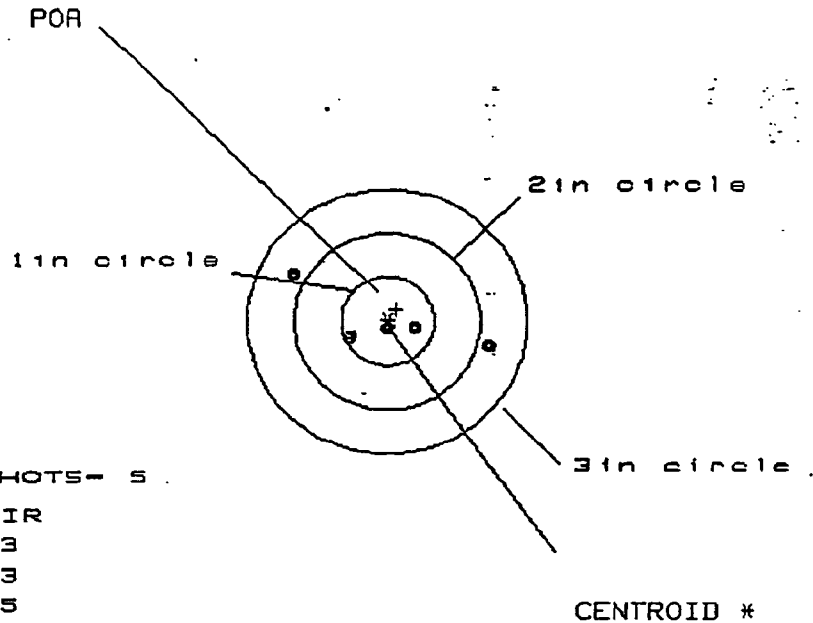
RANGE - 100 YDS

REST - SAND BAG

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FILE:/PATTERNING/CENTERFIRE_PATT/C6563100

CENTERFIRE PATTERNS # 2



OF SHOTS - 5

IN CIR

1in = 3

2in = 3

3in = 5

HS = 2.019

VS = .853

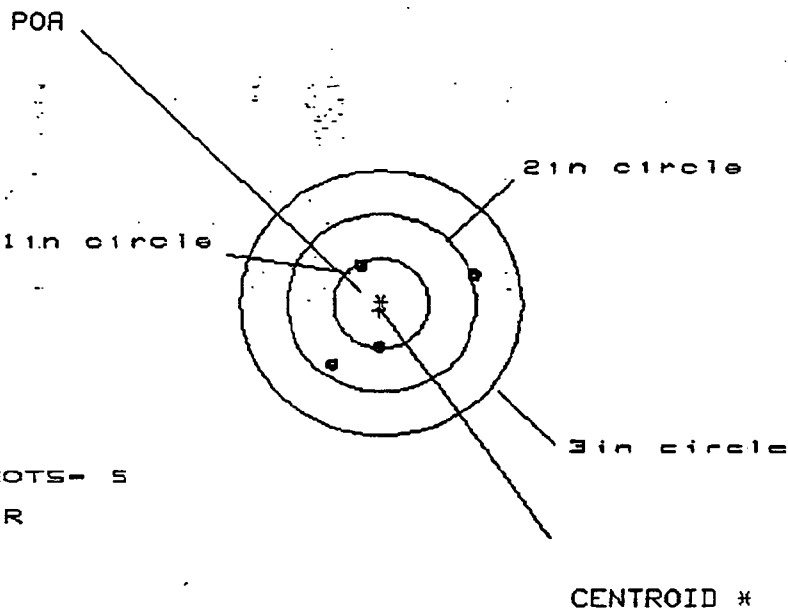
GS = 2.192

PATTERN #	2		
SHOTS (BEST OF)	5	4	3
MAXIMUM X	1.046	.802	.353
MINIMUM X	-.973	-.643	-.375
MAXIMUM Y	.568	.101	.054
MINIMUM Y	-.285	-.143	-.058
CENTROID X	-.091	.153	-.115
CENTROID Y	-.133	-.275	-.228
POA TO CENTROID in.	.161	.315	.255
MIN RADIUS	.090	.132	.023
MEAN RADIUS	.612	.460	.253
MAX RADIUS	1.127	.815	.380
HORIZONTAL SPREAD	2.019	1.445	.728
VERTICAL SPREAD	.853	.244	.112
EXTREME SPREAD	2.192	1.451	.737
NUMBER IN ONE INCH CIRCLE	=	3	
NUMBER IN TWO INCH CIRCLE	=	3	
NUMBER IN THREE INCH CIRCLE	=	5	

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FILE:/PATTERNING/CENTERFIRE_PATT/C6563108

CENTERFIRE PATTERNS # 3



OF SHOTS- 5

IN CIR

1 in = 3

2 in = 4

3 in = 5

HS= 1.567

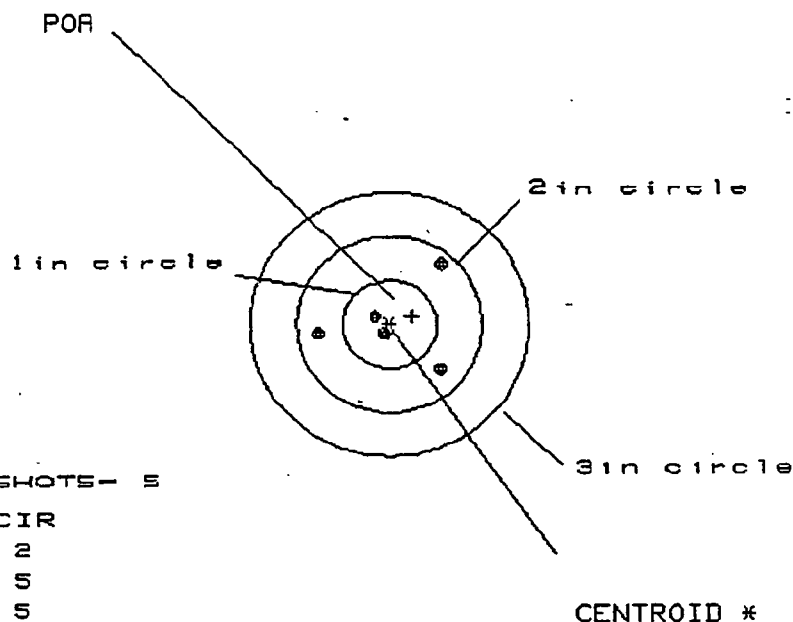
VS= 1.080

GS= 1.853

PATTERN #	3	4	3
SHOTS (BEST OF)	5	4	3
MAXIMUM X	1.021	.201	.104
MINIMUM X	-.546	-.290	-.058
MAXIMUM Y	.410	.489	.293
MINIMUM Y	-.670	-.591	-.556
CENTROID X	.023	-.233	-.136
CENTROID Y	.076	-.003	.193
POA TO CENTROID in.	.079	.233	.236
MIN RADIUS	.432	.412	.268
MEAN RADIUS	.655	.506	.377
MAX RADIUS	1.070	.658	.566
HORIZONTAL SPREAD	1.567	.491	.162
VERTICAL SPREAD	1.080	1.080	.849
EXTREME SPREAD	1.853	1.129	.864
NUMBER IN ONE INCH CIRCLE =		3	
NUMBER IN TWO INCH CIRCLE =		4	
NUMBER IN THREE INCH CIRCLE =		5	

SNL # C.656.3003

CENTERFIRE PATTERNS: # 1



OF SHOTS- 5

IN CIR

1 in = 2

2 in = 5

3 in = 5

HS- 1.315

VS- 1.150

GS- 1.514

AVG- 1.93

PATTERN #

1

SHOTS (BEST OF)

5

4

3

MAXIMUM X

.546

.658

.447

MINIMUM X

-.769

-.633

-.286

MAXIMUM Y

.662

.227

.253

MINIMUM Y

-.488

-.323

-.297

CENTROID X

-.235

-.371

-.160

CENTROID Y

-.094

-.259

-.285

POA TO CENTROID in.

.253

.453

.327

MIN RADIUS

.171

.053

.168

MEAN RADIUS

.548

.416

.362

MAX RADIUS

.858

.733

.537

HORIZONTAL SPREAD

1.315

1.291

.733

VERTICAL SPREAD

1.150

.550

.550

EXTREME SPREAD

1.514

1.352

.916

NUMBER IN ONE INCH CIRCLE =

2

NUMBER IN TWO INCH CIRCLE =

5

NUMBER IN THREE INCH CIRCLE =

5

m-700 7x64

AMMO: NORMA

156 GR. S.P. SPIRE PT.

INDEX - 17013

LOT - 02723

SCOPE - LYMAN

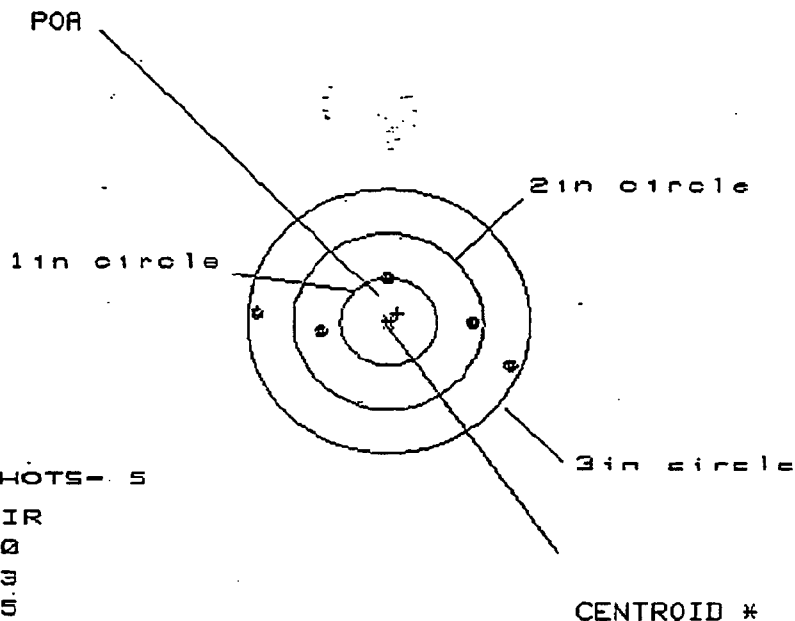
ALL AMERICAN - 20X

LEUPOLD RINGS & BASES

RANGE - 100 YDS

REST - SAND BAG

CENTERFIRE PATTERNS # 2



OF SHOTS- 5

IN CIR

1in = 0

2in = 3

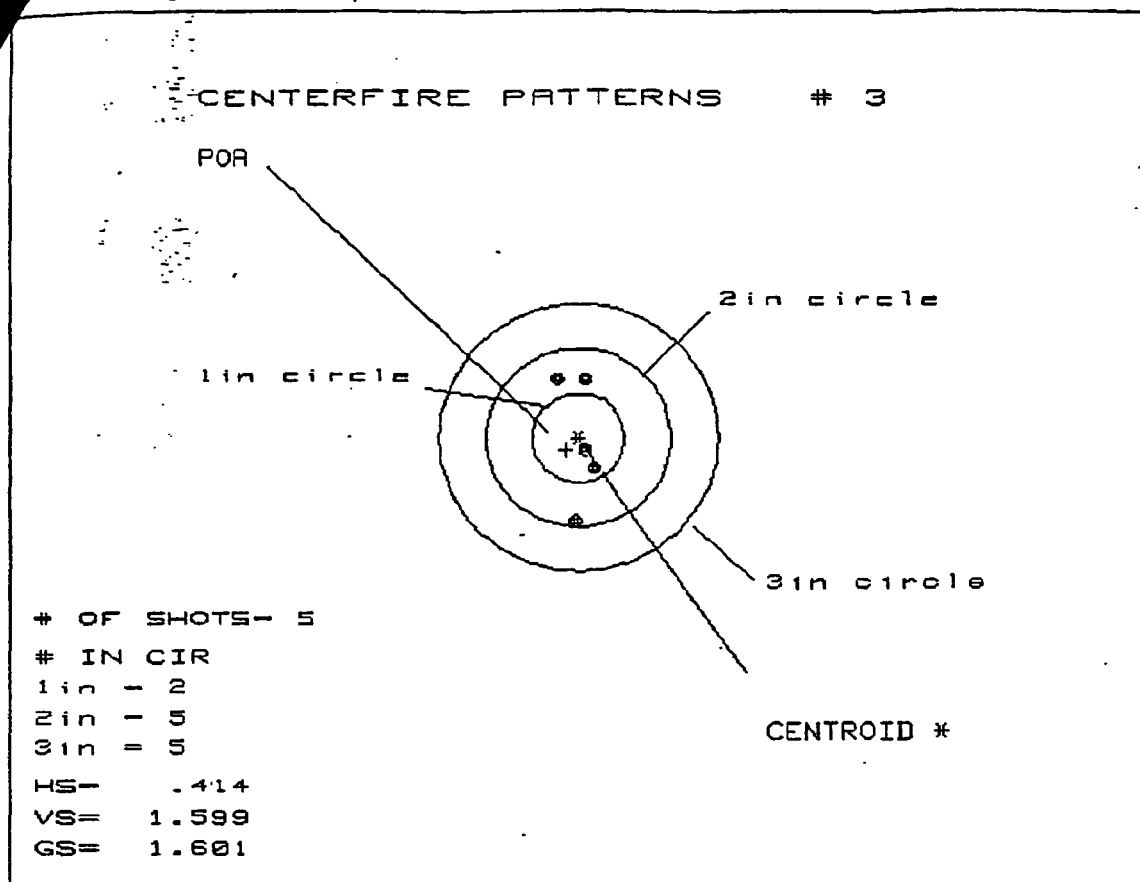
3in = 5

HS= 2.624

VS= .991

GS= 2.679

PATTERN #	2		
SHOTS (BEST OF)	5	4	3
MAXIMUM X	1.253	.910	.837
MINIMUM X	-1.371	-1.056	-.752
MAXIMUM Y	.514	.529	.376
MINIMUM Y	-.477	-.461	-.226
CENTROID X	-.093	.249	-.054
CENTROID Y	-.106	-.121	.032
POA TO CENTROID in.	.141	.278	.063
MIN RADIUS	.516	.534	.385
MEAN RADIUS	.965	.817	.674
MAX RADIUS	1.372	1.058	.850
HORIZONTAL SPREAD	2.624	1.966	1.589
VERTICAL SPREAD	.991	.991	.602
EXTREME SPREAD	2.679	2.004	1.591
NUMBER IN ONE INCH CIRCLE	=	0	
NUMBER IN TWO INCH CIRCLE	=	3	
NUMBER IN THREE INCH CIRCLE	=	5	



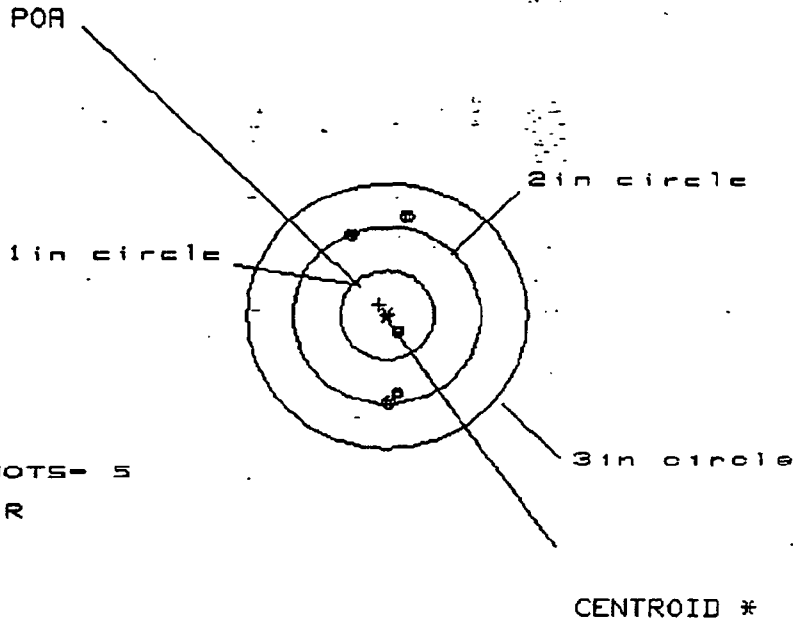
PATTERN #	3	4	3
SHOTS (BEST OF)	5	4	3
MAXIMUM X	.176	.171	.090
MINIMUM X	-.238	-.243	-.063
MAXIMUM Y	.699	.474	.627
MINIMUM Y	-.900	-.595	-.442
CENTROID X	.135	.140	.221
CENTROID Y	.132	.357	.204
POA TO CENTROID in.	.189	.384	.301
MIN RADIUS	.129	.344	.188
MEAN RADIUS	.573	.489	.423
MAX RADIUS	.900	.619	.631
HORIZONTAL SPREAD	.414	.414	.153
VERTICAL SPREAD	1.599	1.069	1.069
EXTREME SPREAD	1.601	1.134	1.080
NUMBER IN ONE INCH CIRCLE =	2		
NUMBER IN TWO INCH CIRCLE =	5		
NUMBER IN THREE INCH CIRCLE =	5		

SN # C6562914

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FILE:/PATTERNING/CENTERFIRE_PATT/C6562914.1

CENTERFIRE PATTERNS # 1



OF SHOTS- 5

IN CIR

1 in = 1

2 in = 3

3 in = 5

HE = .587

VS = 2.098

GS = 2.108

AVG- 1.74

PATTERN #

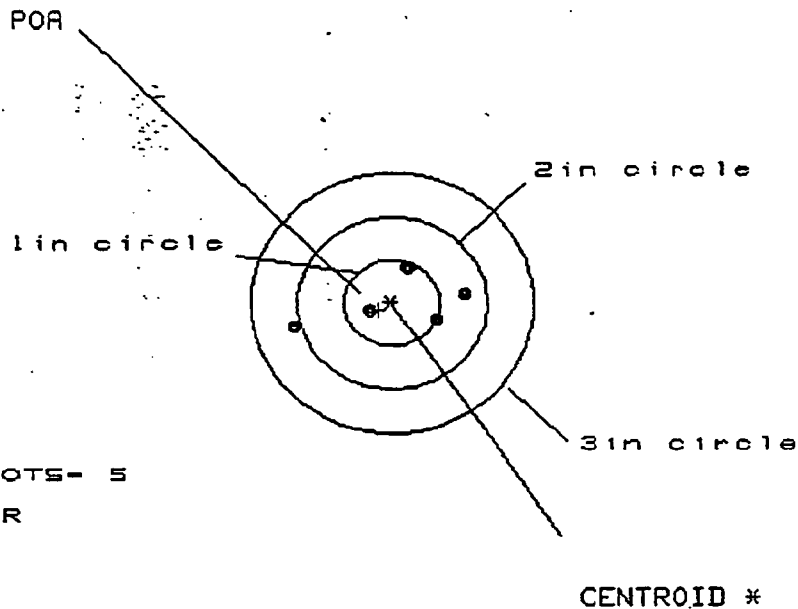
1

SHOTS (BEST OF)	:	5	4	3	M-700- 7X64
MAXIMUM X	:	.185	.168	.050	<u>Ammo-</u> NORMA.
MINIMUM X	:	-.402	-.356	-.091	156GR. SR SPIRE PT.
MAXIMUM Y	:	1.104	1.244	.493	INDEX- 17013
MINIMUM Y	:	-.994	-.718	-.304	LOT - 02723
CENTROID X	:	.090	.044	.162	<u>SCOPE-</u> LYMAN
CENTROID Y	:	-.119	-.395	-.809	ALL AMERICAN- 20X
POA TO CENTROID in.	:	.149	.397	.825	LEUPOLD RINGS & BASES
MIN RADIUS	:	.232	.186	.194	<u>RANGE-</u> 100 YDS
MEAN RADIUS	:	.856	.706	.336	<u>REST-</u> SAND BAG
MAX RADIUS	:	1.119	1.294	.496	
HORIZONTAL SPREAD	:	.587	.524	.141	
VERTICAL SPREAD	:	2.098	1.962	.797	
EXTREME SPREAD	:	2.108	1.999	.809	
NUMBER IN ONE INCH CIRCLE	=		1		
NUMBER IN TWO INCH CIRCLE	=		3		
NUMBER IN THREE INCH CIRCLE	=		5		

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FILE:/PATTERNING/CENTERFIRE_PATT/C6562914.1

CENTERFIRE PATTERNS # 2



OF SHOTS- 5

IN CIR

1 in - 3

2 in - 4

3 in - 5

HS- 1.742

VS- .774

GS- 1.795

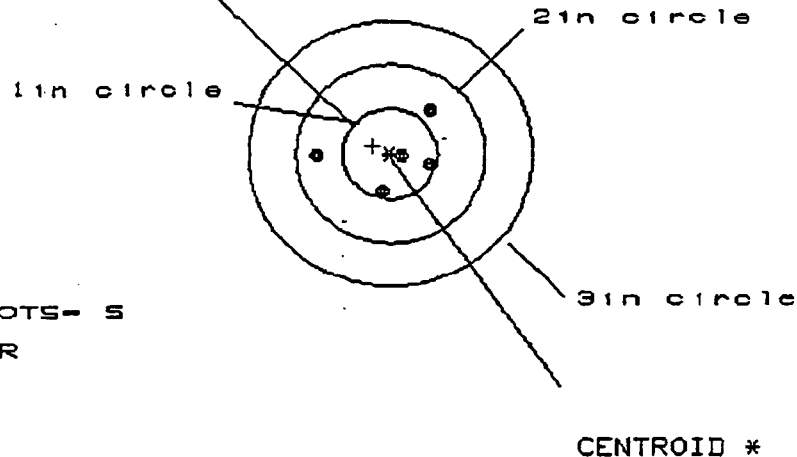
PATTERN #	2	3	4	5
SHOTS (BEST OF)	5	4	3	
MAXIMUM X	.720	.465	.335	
MINIMUM X	-1.022	-.525	-.370	
MAXIMUM Y	.456	.376	.388	
MINIMUM Y	-.318	-.277	-.265	
CENTROID X	.139	.394	.239	
CENTROID Y	.081	.161	.149	
POA TO CENTROID in.	.161	.426	.281	
MIN RADIUS	.275	.330	.390	
MEAN RADIUS	.606	.433	.402	
MAX RADIUS	1.070	.542	.427	
HORIZONTAL SPREAD	1.742	.990	.705	
VERTICAL SPREAD	.774	.653	.653	
EXTREME SPREAD	1.795	1.005	.719	
NUMBER IN ONE INCH CIRCLE	=	3		
NUMBER IN TWO INCH CIRCLE	=	4		
NUMBER IN THREE INCH CIRCLE	=	5		

26 Sep 1998

FILE:/PATTERNING/CENTERFIRE PATT/C6562914.1

CENTERFIRE PATTERNS # 3

POA



OF SHOTS- 5

IN CIR

1in = 3

2in = 5

3in = 5

HS- 1.253

VS- .859

GS- 1.334

PATTERN #	3	4	3
SHOTS (BEST OF)	5	4	3
MAXIMUM X	.425	.218	.247
MINIMUM X	-.828	-.341	-.268
MAXIMUM Y	.488	.496	.145
MINIMUM Y	-.371	-.363	-.198
CENTROID X	.186	.393	.320
CENTROID Y	-.090	-.098	-.263
POA TO CENTROID in.	.207	.405	.414
MIN RADIUS	.158	.056	.147
MEAN RADIUS	.485	.326	.244
MAX RADIUS	.828	.542	.333
HORIZONTAL SPREAD	1.253	.559	.515
VERTICAL SPREAD	.859	.859	.343
EXTREME SPREAD	1.334	1.025	.573
NUMBER IN ONE INCH CIRCLE	=	3	
NUMBER IN TWO INCH CIRCLE	=	5	
NUMBER IN THREE INCH CIRCLE	=	5	

SN. # C6562997

26 Sep 1998

FILE: PATTERNING/CENTERFIRE_PATT/C6562997

CENTERFIRE PATTERNS

1

POA

1in circle

2in circle

3in circle

OF SHOTS - 5

IN CIR

1in = 2

2in = 4

3in = 5

HS = 1.156

VS = 1.667

GS = 2.029

AVG - 1.57

CENTROID *

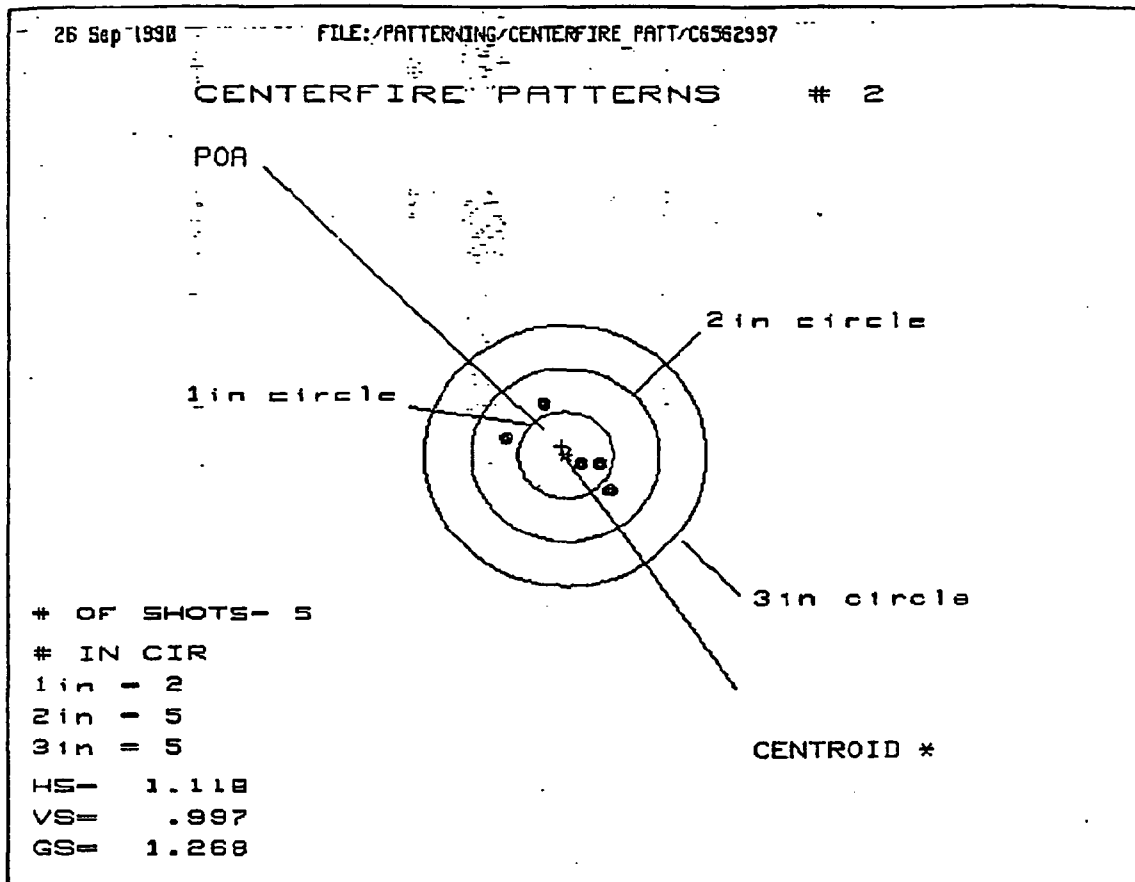
PATTERN # : 1

SHOTS (BEST OF) : 5
 MAXIMUM X : .466
 MINIMUM X : -.690
 MAXIMUM Y : 1.014
 MINIMUM Y : -.653
 CENTROID X : .282
 CENTROID Y : -.272
 POA TO CENTROID in.: .392
 MIN RADIUS : .378
 MEAN RADIUS : .706
 MAX RADIUS : 1.227
 HORIZONTAL SPREAD : 1.156
 VERTICAL SPREAD : 1.667
 EXTREME SPREAD : 2.029
 NUMBER IN ONE INCH CIRCLE =
 NUMBER IN TWO INCH CIRCLE =
 NUMBER IN THREE INCH CIRCLE =

4
 .293
 -.616
 .515
 -.399
 .455
 -.526
 .695
 .304
 .505
 .695
 .909
 .914
 1.101
 2
 4
 5

3
 .320
 -.518
 .382
 -.455
 .357
 -.393
 .531
 .328
 .483
 .690
 .838
 .837
 1.101

M-700. 7X64
 Ammo: NORMA
 150 GR. SA. SPIRE PT.
 INDEX 17013
 LOT - 02723
 SCOPE - LYMAN
 ALL AMERICAN - 20X
 LEUPOLD RINGS & BASE
 RANGE - 100 YDS.
 REST - SAND BAG.

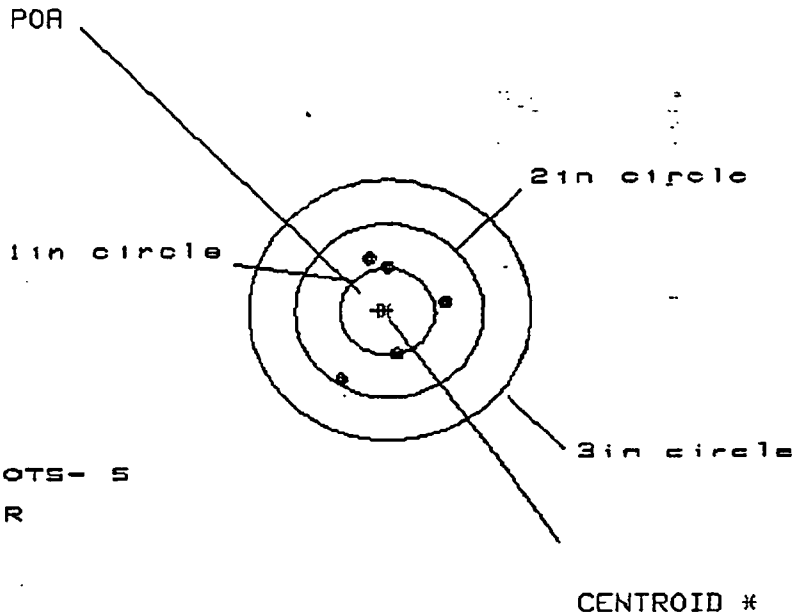


PATTERN #	1	2	3
SHOTS (BEST OF)	5	4	3
MAXIMUM X	.465	.301	.280
MINIMUM X	-.653	-.435	-.335
MAXIMUM Y	.556	.596	.462
MINIMUM Y	-.441	-.402	-.245
CENTROID X	.037	.201	.100
CENTROID Y	-.096	-.136	-.002
POA TO CENTROID in.	.103	.242	.100
MIN RADIUS	.170	.094	.223
MEAN RADIUS	.495	.386	.389
MAX RADIUS	.672	.738	.570
HORIZONTAL SPREAD	1.118	.737	.615
VERTICAL SPREAD	.997	.997	.707
EXTREME SPREAD	1.268	1.240	.937
NUMBER IN ONE INCH CIRCLE	=	2	
NUMBER IN TWO INCH CIRCLE	=	5	
NUMBER IN THREE INCH CIRCLE	=	5	

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CENTERFIRE PATTERNS # 3



OF SHOTS- 5

IN CIR

1in = 1

2in = 5

3in = 5

HS= 1.117

VS= 1.376

GS= 1.412

CENTROID #

PATTERN #	3	4	3
SHOTS (BEST OF)	5	4	3
MAXIMUM X	.614	.488	.384
MINIMUM X	-.503	-.314	-.209
MAXIMUM Y	.607	.414	.474
MINIMUM Y	-.769	-.644	-.506
CENTROID X	.097	.223	.327
CENTROID Y	-.014	.179	.041
POA TO CENTROID in.	.098	.286	.330
MIN RADIUS	.455	.352	.385
MEAN RADIUS	.632	.505	.479
MAX RADIUS	.919	.648	.535
HORIZONTAL SPREAD	1.117	.802	.593
VERTICAL SPREAD	1.376	1.058	.980
EXTREME SPREAD	1.412	1.086	.981
NUMBER IN ONE INCH CIRCLE	= 1		
NUMBER IN TWO INCH CIRCLE	= 5		
NUMBER IN THREE INCH CIRCLE	= 5		